

pdvjtools Pure Data externals

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ABSTRACT

In this paper, we describe the pdvjtools set of externals for Pure Data. The general idea is provide graphical tools to be helpful for the visual work with Pure Data in Linux. pdvjtools is also composed of some externals to apply video effects in real time.

Keywords

pdvjtools, vj, video, external, GUI (graphical user interface).

1. INTRODUCTION

In order to build some applications with Pure Data to control sources and flow of video seems important to include visual facilities to end users for better performance.

Pure Data Visual Junk Tools, aka pdvjtools, is a bunch of externals intended to use as utilities for the visual work with Pure Data.

There are three categories of objects:

1. GUI widget: the main idea behind this objects is to extend the interface of pd, but just using and exploring the same graphical toolkit in which is based. We strongly believe in Tcl/Tk as a right graphical toolkit for pd because it gives us more facilities than we could imagine in the actual approach.
2. image processing: the two objects on this category are PDP hosts for open source plugin effects systems. Related with them is the intention to reuse and share common resources for video applications.
3. video capture: objects to handle video devices for PDP in Linux. It's because they didn't exist and the really needed by PDP users.

The externals have been built taking as reference:

1. the source code of some graphical internals.
2. the source code of externals libraries like, *PDP* by Tom Shouten, *unauthorized and PiDiP* by Yves Degoyon, *ggee* by Günter Geiger and *Gem* by Mark Danks & others.
3. the *HOWTO write an External for Pure Data* [1] by Johannes M. Zmölning.

The pdvjtools externals are conceived and developed during open lab sessions (opendijous) that take place on Thursdays at the center of visual arts productions Hangar in Barcelona.



<http://hangar.org/pdvjtools>

2. STATUS

pdvjtools currently has seven externals published. These are colorgrid, pdp_1394L, pdp_freeframe, pdp_frei0r, pdp_v4l, pix_preview and videogrid.

When we started each external needs to be compiled separately. Instead of creating new externals, we prefer to find a way to package them for easy installation process and also to improve the objects made.

The first approach was to try to include pdvjtools into pd-extended version, taking advantage of the residence of Hans C. Steiner in Hangar. Finally a pd-extended testing version included pdvjtools externals but problems were discovered with future versions.

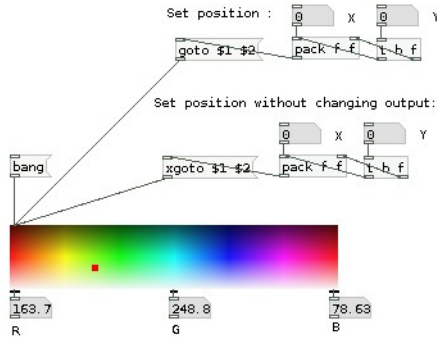
At the same time some externals were compiled to the macOS X system, but finally we decided to develop and maintain the externals for Linux systems only and also provide Debian packages for installation. This is because we don't want to spend time trying to run it in other OS and prefer to focus in our open OS. However anyone who wants to make this work the source code is available.

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3. EXTERNALS DESCRIPTION

3.1 colorgrid

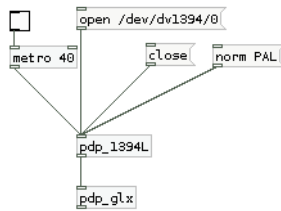
colorgrid is grid color picker where you can select a color with the mouse and obtain RGB values in the outlets.



Useful to pass the values to graphical objects like pdp_text or pix_colorRGB.

3.2 pdp_1394L

An object to handle digital cameras using libdv [2].



Actually this object is part of the PiDiP [3] library renamed as pdp_ieee1394.

3.3 pdp_v4l2

This object is a video4linux2 [4] driver wrapper and a patch for pdp-0.12.5-test-7 sources, adding support to YUYV v4l2 devices.

Actually the object is part of the PiDiP library and the patch is included in the PDP [5] svn tree.

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PdCon09, July 19-26, 2009, São Paulo, SP, Brazil.

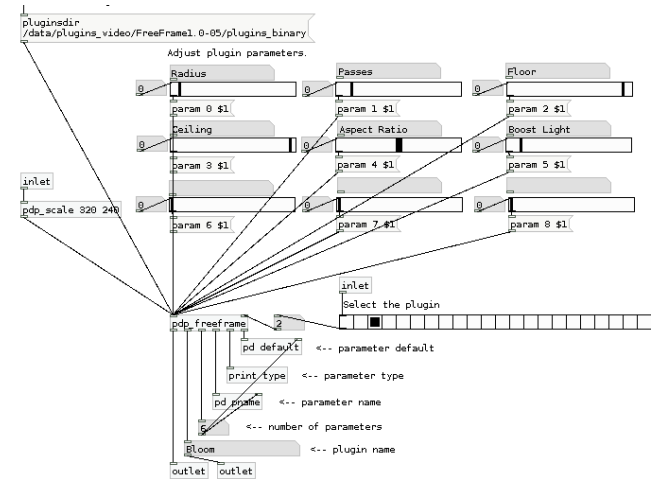
Copyright remains with the author(s).

3.4 pdp_freeframe

FreeFrame [6] is an open-source cross-platform real-time video effects plugin system designed for use in VJing applications.

pdp_freeframe is a freeframe host for PureDataPacket (PDP).

With pdp_freeframe you can use more than 40 video effects in PDP.

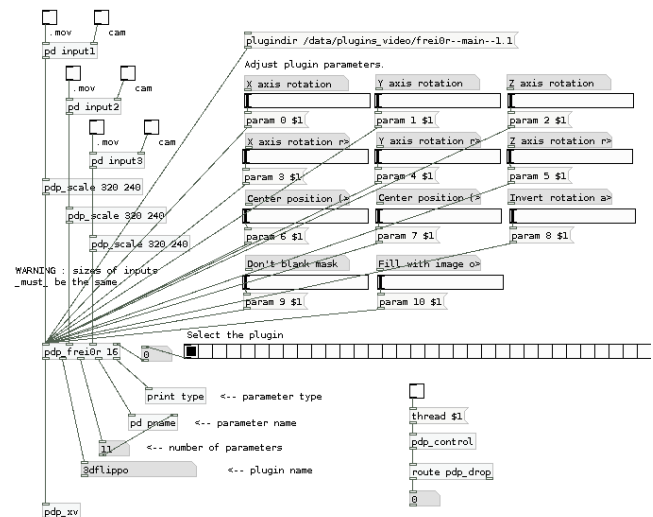


Actually well tested with the excellent plugin set developed by Pete Warden [7].

3.5 pdp_freir0r

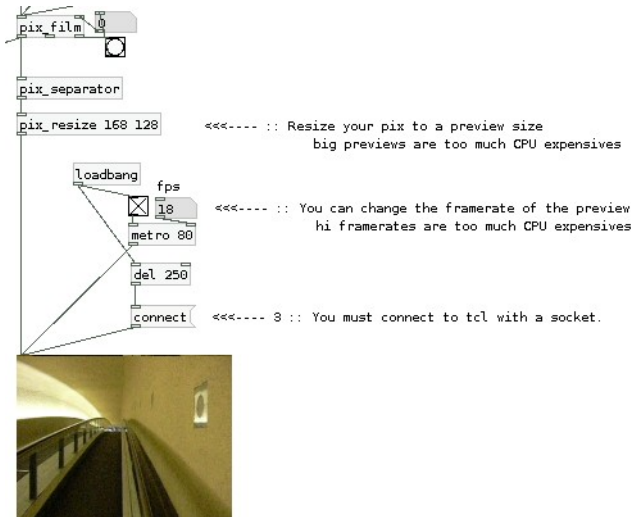
Frei0r [8] is a minimalistic plugin API for video sources and filters.

The behavior of the effects can be controlled from the host by simple parameters. The intent is to solve the recurring reimplementaion or adaptation issue of standard effects.



3.6 pix_preview

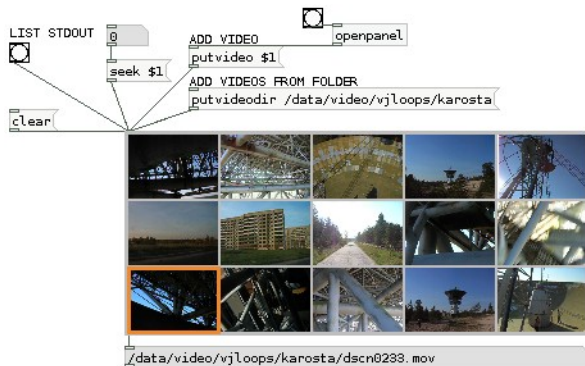
pix_preview let us to preview any [pix] output inside the patch canvas as a low rate preview windows when using the main Gem window in a separate monitor.



pix_preview is alpha software with known bugs.

3.7 videogrid

A thumbnail based 1-click file chooser for images and movies based on FFMPEG [9] libraries.



videogrid allows us to determine the number of rows and columns of the grid. We can also change the size of the thumbnails and filter for a list of file formats. The media files can be added one by one, or be referenced by the owner directory and put them in cyclical way.

Useful to choose the video source you want to play with [pdp_qt] in PDP or with [pix_movie] in Gem.

4. SOURCES / DEBIAN PACKAGES

To maintain the externals and make them available to everyone we use the Pure Data SourceForge Subversion repository to place the sources.

You can freely get the sources here:

<http://pure-data.svn.sourceforge.net/viewvc/pure-data/trunk/externals/pdvjtools/>

We mounted a machine to generate Debian packages for externals installation.

The packages can be found here:

<http://www.artefacte.org/pdpkg/>

Our package builder system automatically gets the last pd-extended svn snapshot and compile the pdvjtools externals for three different Ubuntu versions and two architectures. So that we commit the code changes via svn before to build packages.

5. WORK IN PROGRESS

After two years of development we have now a well founded base to extend our work in different manners, as new externals programming and also delivering them in a properly way.

5.1 Future externals

The main goal on this subject is to develop new GUI widgets, some of them from our needs and/or some others commonly used on graphic applications.

5.1.1 videotracker

An object to easily sequence video tracks over the time. With a similar aspect to the videogrid but drawing only one video on each row. Each column references a time unit and allows to select only one video which will be played on that time.

5.1.2 pixpicker

GUI widget to pick XY coordinates from an image in the canvas. It can be useful to select pixels positions and pass them to pix_data and get the color values of that pixel.

5.1.3 3D_axis

GUI widget to easily rotate three dimensional objects. The widget will show the typical three axis control which you can move with the mouse.

5.1.4 imgLevels

GUI widget to show a graphical representation of the RGB channel levels of an image.

5.1.5 imgHisto

GUI widget to show a graphical representation of the RGB channel levels of an image. Useful to send control parameters to pix_levels.

5.1.6 cropBox

GUI widget to do a select rectangular areas with the mouse using drag and drop. Useful to send offset and size values to pix_crop or pdp_crop objects.

5.2 Packaging for other Linux distributions

Our actual auto build system is ready to host other Linux distributions and so that to compile our externals for them. Giving the user the facility for installing the externals in the easiest way possible.

Planned new packages include Debian and Fedora versions.

6. ACKNOWLEDGMENTS

Our thanks to Yves Degoyon, Güenter Geiger and Johannes M. Zmölning for sharing code, to Jean Habib, Carlos López, Dani Villalba, Jueves (rez), Xavi Manzanares, Luca Carrubba, Óscar Martín, Jovan Cvetkovski, Erwan Leralé and Vale Messeri for exhaustive testing and contributions; to Hangar for infrastructure and open mind.

7. REFERENCES

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<http://www.petewarden.com/PluginHelp.htm>
- [8] frei0r, *Minimalistic plugin API for video sources and filters*
<http://www.piksel.org/frei0r>
- [9] FFMPEG, *An open source project to work with video codecs, formats and others*
<http://www.ffmpeg.org>